REMARKS

Applicants acknowledge receipt of the Examiner's Office Action dated October 11, 2007.

Claims 1, 3, 5-8, 10, 12-15, 17, 19-21 stand rejected under 35 U.S.C. § 103(a) as being

unpatentable over Federwisch, U.S. Patent No. 6,889,228 (Federwisch) and in view of Patterson

et al., "SnapMirror: File System Based Asynchronous Mirroring for Disaster Recovery"

(Patterson). In light of the foregoing amendments and following remarks, Applicants

respectfully request the Examiner's reconsideration and reexamination of all pending claims.

As noted, each independent claim was rejected under 35 U.S.C. § 103 as being

unpatentable over Federwisch and Patterson. The Office Action asserts that column 6, lines 15-

55 and Figure 2 of Federwisch teaches nearly all the limitations of the independent claims.

Applicants respectfully traverse this rejection.

Independent Claim 1 contains limitations that are common to all the independent claims,

and Claim 1 recites:

> A method comprising:
>
> asynchronously replicating data to be written to a data volume of a first node to a data volume of a second node; and
>
> replicating data to be written to said data volume of said second node to a data volume of a third node, wherein said replicating data to be written to said data volume of said second node comprises periodically replicating, at a first frequency, said data to be written to said data volume of said second node to said data volume of said third node; and
>
> replicating data to be written to said data volume of said third node to a data volume of a fourth node, wherein said replicating data to be written to said data volume of said third node comprises periodically replicating, at a second frequency, said data to be written to said data volume of said third node to said data volume of said fourth node; wherein
>
> said first frequency is higher than said second frequency.

Independent Claim 1 makes clear that replication is occurring between several distinct volumes. In particular, independent Claim 1 recites asynchronously replicating data between data volumes of first and second nodes; periodically replicating data between volumes of second and third nodes; periodically replicating data between volumes of third and fourth nodes. Moreover, it is noted the periodic replicating between the second and third nodes occurs at a frequency that is higher than the frequency of periodic replication between volumes of third and fourth nodes.

The Office Action asserts that column 6, lines 15-55 and Figure 2 of Federwisch teaches nearly all the limitations of the independent claims, including independent Claim 1 above. The Office Action asserts that Federwisch employs "SnapMirror" software to perform cascaded replication, but the Office Action acknowledges that Federwisch does not explicitly teach that said first frequency is higher than said second frequency. Thereafter, the Office Action alleges Patterson teaches this missing limitation citing page 2, column 1, first paragraph in support thereof. Applicants have reviewed these cited sections of Federwisch and Patterson and can find no teaching or fair suggestion of all the limitations of the independent claims.

Column 6, lines 15-55 and Figure 2 of Federwisch teach cascading mirroring of data. Figure 2 is a block diagram of repeated mirroring of "filers." Column 6, lines 15-55 makes clear that Federwisch propagates data by mirroring the data from a first filer to a second filer, and then mirroring the data from the second filer to a third filer. It is clear from Figure 2 and the description of column 6, lines 15-55 of Federwisch that all volumes within Figure 2 are cascaded mirrors of the volumes in block 10. However, column 6, lines 15-55 do not state that any of the mirrors contained are the result of asynchronously while other mirrors are the result of periodic replication. In response to this argument, the Office Action states that on the contrary, Patterson teaches at the last paragraph of column 2, page 1 that SnapMirror is "a technology which

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implement [sic] asynchronous mirror" and "snap mirror periodically transfer [sic] self-consistent snapshots of the data." Applicants wish to point out that column 2, page 1 of Patterson does not teach asynchronous replication between data volumes of a first and second node and separate periodic replication between separate data volumes of, for example, third and fourth nodes. As such, neither Federwisch nor Patterson teach or fairly suggest the limitations of independent Claim 1.

Each of the independent claims recite periodic replication between a first pair of data volumes at a first frequency and periodic replication between another pair of data volumes at a second frequency, wherein said first frequency is higher than said second frequency. The Office Action points to page 2, column 1, first paragraph of Patterson as teaching this limitation. This section of Patterson describes how an update frequency between a pair of mirrors can be adjusted. This section of Patterson does not teach or fairly suggest a first update frequency between a first pair of data volumes and a second frequency update between a separate, second pair of data volumes. In response, the Office Action argues that Patterson teaches in this cited section that replication frequencies are not fixed but can be adjusted. Based on this, the Office Action concludes that Patterson therefore suggests using different frequencies between each pair of data volumes to optimize performance and reduce network costs. This Office Action response, however, does not address Applicants' previous arguments. More particularly, Applicants previously noted and reaffirm herein periodic replication at a first frequency between data volumes of second and third nodes and periodic replication at a second frequency between separate data volumes of third and fourth nodes. Patterson, page 1, column 1 and page 2, column 1, teach replication between only two mirrors. Presuming equivalence between the claimed data volumes and Patterson's mirrors, Patterson does not teach periodic replication between a first pair of mirrors and periodic replication between a separate, second pair of mirrors, let alone

periodic replication between the first pair of mirrors that occurs at a first frequency and periodic replication that occurs between the second pair at a second and higher frequency. Accordingly, Applicants submit for all these reasons, independent Claim 1 is patentably distinguishable over the cited references.

The remaining claims depend directly or indirectly from the independent claims and are patentably distinguishable for this reason.

CONCLUSION

Applicants submit that all claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is requested to telephone the undersigned.

If any extensions of time under 37 C.F.R. § 1.136(a) are required in order for this submission to be considered timely, Applicant hereby petitions for such extensions. Applicant also hereby authorizes that any fees due for such extensions or any other fee associated with this submission, as specified in 37 C.F.R. § 1.16 or § 1.17, be charged to deposit account 502306.

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